

Claims

1. A semiconductor component comprising:
a semiconductor substrate;
an insulating layer formed in the semiconductor substrate; and
a capacitance structure formed in the insulating layer, the capacitance structure comprising:
at least two metallization planes spaced apart from one another in a vertical direction, the at least two metallization planes extending essentially parallel to the semiconductor substrate and connected to a first connecting line;
wherein a first metallization plane of the at least two metallization planes is in lattice form and electrically connected to at least one electrically conductive, inhomogeneous structure extending partially between the at least two metallization planes through a cutout in the first metallization plane.
2. The semiconductor component of claim 1, wherein the at least one inhomogeneous structure is in bar form.
3. The semiconductor component of claim 2, wherein
the at least one inhomogeneous structure comprises at least one metal region and at least one electrically conductive connecting region formed between a metal region and the first metallization plane; and
wherein the at least one inhomogeneous structure is arranged at substantially right angles to the at least two metallization planes.
4. The semiconductor component of claim 3, wherein the at least one inhomogeneous structure is arranged in a cutout in the first metallization

plane such that the first metallization plane and the metal region of the at least one inhomogeneous structure are arranged in one horizontal plane.

5. The semiconductor component of claim 4 wherein a second metallization plane in lattice form is arranged congruently with respect to, and spaced apart from, the first metallization plane, and the first and second metallization planes are connected by electrical connections.

6. The semiconductor component of claim 5 wherein cutouts in the second metallization plane are the same size as cutouts in the first metallization plane.

7. The semiconductor component of claim 5 wherein cutouts in the second metallization plane are larger than cutouts in the first metallization plane.

8. The semiconductor component of claim 5 wherein cutouts in the second metallization plane are smaller than cutouts in the first metallization plane.

9. The semiconductor component of claim 5 wherein the inhomogeneous structure comprises at least two metal regions and at least two connecting regions, the at least two metal regions and the at least two connecting regions being arranged alternately.

10. The semiconductor component of claim 9 wherein the at least two metal regions are the same dimensions.

11. The semiconductor component of claim 9 wherein the at least two metal regions are different dimensions.

12. The semiconductor component of claim 5 wherein the electrical connections form a connecting plane, the connecting plane patterned essentially in line with the first and second metallization planes.
13. The semiconductor component of claim 12 wherein cutouts in the connecting plane are same dimensions as cutouts in the first and second metallization planes.
14. The semiconductor component of claim 12 wherein cutouts in the connecting plane are larger than cutouts in the first and second metallization planes.
15. The semiconductor component of claim 12 wherein cutouts in the connecting plane are smaller than cutouts in the first and second metallization planes.
16. The semiconductor component of claim 12, wherein the capacitance structure comprises a third metallization plane in lattice form, arranged parallel to the at least two metallization planes and formed on a side of a metallization plane closest to the semiconductor substrate which is remote from the first metallization plane.
17. The semiconductor component of claim 16 wherein a second electrically conductive, inhomogeneous structure is formed on a side of the metallization plane closest to the semiconductor substrate which is remote from the first inhomogeneous structure, the second electrically conductive, inhomogeneous structure extending at least partially into the cutouts in the third metallization plane.
18. The semiconductor component of claim 17 wherein the first and second inhomogeneous structures and the at least two metallization

planes are arranged in a vertical direction on both sides of the first metallization plane symmetrically with respect to the first metallization plane.

19. A semiconductor component comprising:
 - a semiconductor substrate;
 - an insulating layer formed on the semiconductor substrate; and
 - a capacitance structure formed in the insulating layer, the capacitance structure comprising:
 - at least two metallization planes spaced apart from one another in a vertical direction, the at least two metallization planes extending essentially parallel to the semiconductor substrate and connected to a first connecting line;
 - wherein a first metallization plane of the at least two metallization planes is in lattice form and electrically connected to at least one electrically conductive, inhomogeneous structure extending partially between the at least two metallization planes through a cutout in the first metallization plane; and
 - further wherein a second metallization plane of the at least two metallization planes in lattice form and arranged congruently with respect to and spaced apart from the first metallization plane; and
 - further wherein the first and second metallization planes are electrically connected by electrical connectors.
20. The semiconductor component of claim 19 wherein the at least one inhomogeneous structure is in bar form.
21. The semiconductor component of claim 20 wherein the at least one inhomogeneous structure is arranged essentially at right angles to the at least two metallization planes; and

further wherein the at least one inhomogeneous structure comprises:

at least one metal region; and
an electrically conductive connecting region formed between
the at least one metal region and the first metallization plane.

22. The semiconductor component of claim 21 wherein the at least one inhomogeneous structure is arranged in a cutout in the first metallization plane such that the first metallization plane and the at least one metal region of the at least one inhomogeneous structure are arranged in a horizontal plane.

23. The semiconductor component of claim 22 wherein cutouts of the second metallization plane are the same size as cutouts of the first metallization plane.

24. The semiconductor component of claim 22 wherein cutouts of the second metallization plane are larger than cutouts of the first metallization plane.

25. The semiconductor component of claim 22 wherein cutouts of the second metallization plane are smaller than cutouts of the first metallization plane.

26. The semiconductor component of claim 22 wherein the at least one inhomogeneous structure comprises at least two metal regions and at least two connecting regions, the at least two metal regions and at least two connecting regions arranged alternately.

27. The semiconductor component of claim 26 wherein the at least two metal regions are the same dimensions.

28. The semiconductor component of claim 26 wherein the at least two metal regions have the same dimensions.

29. The semiconductor component of claim 26 wherein the electrical connectors are formed in a connecting plane, the connecting plane patterned essentially in line with the first and second metallization planes.

30. The semiconductor component of claim 29 wherein cutouts in the connecting plane are the same size as cutouts in the first and second metallization planes.

31. The semiconductor component of claim 29 wherein cutouts in the connecting plane are larger than cutouts in the first and second metallization planes.

32. The semiconductor component of claim 29 wherein cutouts in the connecting plane are smaller than cutouts in the first and second metallization planes.

33. The semiconductor component of claim 1, wherein the capacitance structure comprises a third metallization plane in lattice form, arranged parallel to the first and second metallization planes, the third metallization plane of the capacitance structure formed on a side of a metallization plane closest to the semiconductor substrate which is remote from the first metallization plane.

34. The semiconductor component of claim 33, wherein a second electrically conductive, inhomogeneous structure is formed on the side of the metallization plane closest to the semiconductor substrate which is remote from the first inhomogeneous structure, the second electrically

conductive, inhomogeneous structure extending at least partially into cutouts in the third metallization plane formed on this side.

35. The semiconductor component of claim 19 wherein the at least one inhomogeneous structure and the at least two metallization planes are arranged in a vertical direction on both sides of the first metallization plane symmetrically with respect to the first metallization plane.